## REMARKS

Applicants have amended their claims in order to further clarify the definition of various aspects of the present invention. Specifically, Applicants have amended claims 13, 14, and 20, the independent claims being considered on the merits in the above-identified application to specify that the particle size of all of the graphite powder is equal to or smaller than 100 μm. Note, for example, the paragraph bridging pages 8 and 9 of Applicants' specification. Note also, for example, Embodiment 1 and in particular the description in connection therewith in the paragraph bridging pages 15 and 16 of Applicants' specification, including use of the sieve.

In addition, Applicants have amended claim 32 to recite that the crystal structure of the graphite powder includes at least 80% by weight having hexagonal crystal structure, and have cancelled claim 33 without prejudice or disclaimer.

Initially, it is respectfully requested that the present amendments be entered, not withstanding Finality of the Office Action mailed March 23, 2007. Noting, for example, amendments to claim 32, clearly these amendments materially limit issues remaining in the above-identified application, providing claim 32 consistent with claim 21, and clearly do not raise any new issue, including any issue of new matter. With respect to amendments to claims 13, 14 and 20, it is respectfully submitted that these amendments clearly are supported by Applicants' original disclosure, noting portions of Applicants' specification previously referred to, and thus clearly do not raise any issue of new matter; and, moreover, noting previous arguments, it is respectfully submitted that these amendments to claims 13, 14 and 20 do not raise any new issues. Noting arguments made by the Examiner in the Office Action

mailed March 23, 2007, it is respectfully submitted that the present amendments are clearly timely.

In view of the foregoing, it is respectfully submitted that Applicants have made the necessary showing under 37 C.F.R. §1.116(b)(3), and that, accordingly, entry of the present amendments is clearly proper.

Applicants respectfully submit that all of the claims presented for consideration by the Examiner patentably distinguish over the teachings of the prior art applied by the Examiner in rejecting claims in the Office Action mailed March 23,2007, that is, the teachings of the U.S. patents to Takami, et al., No. 5,340,670, and to Flandrois, et al., No. 5,554,462, under the provisions of 35 U.S.C. §102 and 35 U.S.C. §103.

It is respectfully submitted that these references as applied by the Examiner would have neither taught nor would have suggested such a non-aqueous secondary battery as in the present claims, having, inter alia, a negative electrode whose active material is graphite, and wherein the graphite active material of the negative electrode includes graphite powder having substantially completely a crystal structure, the raw material of the graphite of the negative electrode being natural graphite, with a particle size of the all of graphite powder being equal to or smaller than 100μm (note claims 13, 14 and 20), and, moreover, wherein a rhombohedral fraction, of the crystal structure of the graphite powder, is in a range of 0-20% by weight (see claims 13 and 20), and/or wherein a hexagonal fraction, of the crystal structure of the graphite powder, is in a range of at least 80% by weight (note claims 14, 21 and 32).

The invention as claimed in the above-identified application is directed to a non-aqueous secondary battery using a negative electrode that has graphite as the

active material, this graphite active material being made of graphite powder. The present invention has use, for example, in connection with a lithium battery, and provides such battery which can have a high energy density and a long life, and which has excellent intercalation capacity (that is, an increased capacity of the battery).

Carbon material has been proposed as negative electrode active material in place of lithium metal, in lithium batteries, in which charge and discharge reactions involving lithium ion intercalation into the carbon material and deintercalation from the carbon material occur. However, in previously proposed batteries (e.g., lithium secondary batteries) using carbon material as active material for the negative electrode, a large capacity cannot be obtained; and, moreover, preferable performances of rapid charging and discharging are not obtained. Note the paragraph bridging pages 2 and 3 of Applicants' specification.

Against this background, Applicants provide a non-aqueous secondary battery using a negative electrode with graphite active material, which active material has good charging and discharging characteristics, while having a large capacity (large intercalation capacity). Applicants have found that by using, as the negative electrode active material, graphite powder having substantially completely a crystal structure, with all of the graphite powder having a particle size of at most 100 μm, with raw material of the graphite of the negative electrode being natural graphite, and with this crystal structure being at least 80% hexagonal crystal structure and/or at most 20% rhombohedral crystal structure, for the overall structure of the graphite powder (which graphite powder, e.g., has laminated graphite layers); and, in particular, by limiting the amount of rhombohedral crystal structure of the graphite powder and increasing the amount of hexagonal crystal structure thereof, various

advantages are achieved. In particular, by reducing the amount of rhombohedral crystal structure, of the graphite powder, and increasing hexagonal crystal structure, intercalation capacity of the negative electrode is increased. That is, the number of storage sites for lithium in the negative electrode is increased.

Thus, as features of the present invention, the graphite contained in the negative electrode active material contains rhombohedral crystal structure of at most 20%, and hexagonal crystal structure of at least 80%, with all of the graphite powder having a particle size of at most 100 μm and with raw material of the graphite of a negative electrode being natural graphite.

Applicants have found that when grinding the graphite, the resulting powder has a disadvantageously large amount of rhombohedral crystal structure, with small intercalation-deintercalation capacity and show charging/discharging properties. Having discovered this problem, Applicants avoid this problem by reducing rhombohedral crystal structure and increasing hexagonal crystal structure, thereby achieving advantages of the present invention.

Aspects of the present invention focus on the crystal structure of the graphite powder of the active material of the negative electrode, requiring that the graphite powder active material has substantially completely a crystal structure, and the crystal structure is constituted of hexagonal crystal structure of at least 80% by weight and rhombohedral crystal structure in a range of 0-20% by weight. The graphite powder of the active material of the negative electrode, according to the present invention, has increased hexagonal crystal structure, due to an orderliness and regularity of the hexagonal-net-plane layers, and the regular stacking of these layers. That is, it is respectfully submitted that the fundamental hexagonal crystal structure, of the substantially complete crystal structure of the graphite powder

according to the present invention, is achieved based upon regularity and orderliness of the lamination (stacking) of these layers. In accordance with the present invention, the existing ratio of hexagonal crystal structure, of the substantially complete crystal structure of the graphite powder as a whole, is specified at a high level, and/or the rhombohedral crystal structure is at a low level, in order to achieve the increased capacity of the battery as described in Applicants' disclosure.

In comparison, and as will be discussed in more detail infra, Takami, et al. discloses crystallites, and structure with hexagonal-net-plane layers; however, this reference is silent with respect to orderliness and regularity of the laminated (stacked) hexagonal-net-plane layers. More specifically, it is respectfully submitted that Takami, et al. teaches away from such orderliness and regularity (e.g., a substantially complete crystal structure) of the laminated hexagonal-net-plane layers, in describing that the hexagonal-net-plane layers stacked in the graphite structure "have appropriate displacements, twists and angles to one another", so that when the stacked hexagonal-net-layers have appropriate displacements, twists, and angles to one another, lithium ions diffuse more easily between the hexagonal-net-plane layers, so the carbonaceous material presents a property of reversibly, rapidly absorbing and desorbing a large number of lithium ions. See column 7, lines 29-40.

It is respectfully submitted that the carbonaceous material in Takami, et al. is constituted by stacking "hexagonal-net-plane layers", each of the layers is constituted by a unit plane layer A, B or C, and each unit plane layer is constituted by a large number of crystallites spread in a plane, each of which is constituted by 6 carbon atoms, as, for example, illustrated in Figs. 1 and 3 of Flandrois, et al. Importantly, it is respectfully submitted that Takami, et al. nowhere discloses the stacking condition of the hexagonal-net-plane layers, other than describing that the

layers stacked in the graphite structure "have appropriate displacements, twists and angles to one another". As stated previously, and discussed further infra, such appropriate displacements, twists and angles to one another teach away from the substantially complete crystal structure of the graphite powder as in the present claims. Specifically, according to the present invention, the layers are stacked in an orderly and regular manner to form substantially complete crystal structure in the graphite.

While Takami, et al. describes crystal planes (faces) (101) and (100) for specifying the intensity ratio $P_{101}/P_{100}$ of the (101) diffraction peak $P_{101}$ to the (100) diffraction peak $P_{100}$ of the graphite structure, Takami, et al. refers to crystallites of the graphite structure, and it is respectfully submitted that this reference does not identify crystal planes, or whether the planes relate to hexagonal crystal structure or rhombohedral crystal structure.

It is respectfully submitted that Takami, et al. specifically discloses the need for twisted structures, thus having a number of twisted structures. In comparison, the present invention has a substantially complete crystal structure, substantially without twisted structures as required by Takami, et al. As contended previously, and as will be discussed further infra, it is respectfully submitted that the disclosure of Takami, et al. in connection with "displacements, twists and angles" of the hexagonal-net-plane layers to one another would have taught away from the substantially complete crystal structure with the recited hexagonal/rhombohedral crystal structure, and advantages thereof with respect to increased intercalation capacity of the negative electrode, as in the present invention.

Furthermore, and as indicated previously, Takami, et al. discloses crystallites, and structure with hexagonal-net-plane layers which are laminated; however, it is

respectfully submitted that this reference is silent with respect to orderliness and regularity of the laminated (stacked) hexagonal-net-plane layers; and, in particular, it is respectfully submitted that this reference is silent in connection with a substantially complete crystal structure as in the present invention. In connection with differences between crystallites and crystals, attention is again respectfully directed to the definition of "crystal" and of "crystallite" on page 327 of Hawley's Condensed Chemical Dictionary (12$^{th}$ Ed. 1993), submitted with the Submission (Amendment) filed November 22, 2004. As can be appreciated therefrom, a crystallite is that portion of a crystal whose constituent atoms, ions or molecules form a perfect lattice, without strains or other imperfections, and is usually microscopic (while crystals may be quite large). Taking the disclosure of Takami, et al. as a whole, including the disclosure therein of "appropriate displacements, twists and angles" of the planar layers to one another (note, for example, column 7, line 21-40 of Takami, et al.), it is respectfully submitted that Takami, et al. would have neither disclosed nor would have suggested, and in fact would have taught away from, the crystal powder having a substantially complete crystal structure, and especially with specified fractions of the crystal structure being hexagonal and/or rhombohedral, as in the present claims, and advantages thereof.

Furthermore, as another feature of the present invention, the raw material used for the negative electrode active material graphite is natural graphite. It is respectfully submitted that natural graphite contains limited amorphous components, when compared with graphite other than natural graphite, and shows a high crystallinity, and because of the high crystallinity the capacity and rapid charging and discharging property (overload withstanding property) of the secondary battery using graphite formed from such natural graphite can be enhanced.

Further, because of the high crystallinity of natural graphite, it is easy to convert the rhombohedral crystal structure to hexagonal structure in the course of a sintering process of the graphite, and the ratio of rhombohedral crystal structure can be reduced.

It must be emphasized that the present invention does not simply use natural graphite, but uses natural graphite as raw material, and in view thereof the ratio of rhombohedral crystal structure to hexagonal crystal structure can be controlled providing amounts of these crystal structures as in the present claims. As a result, the capacity and rapid charging and discharging properties of the secondary battery using negative electrodes having active material as in present claims can be further enhanced.

To emphasize, in accordance with the present invention, graphite powder of a relatively small size (all of the powder having a particle size of 100 μm or less) is used as the active material for the negative electrode, a focus thereof is on a substantially complete crystallinity of this graphite powder and the type of crystal structure, and the graphite powder is formed using natural graphite as a raw material. Applicants have found that by using graphite powder having a substantially complete crystal structure, and having a relatively large amount of this crystal structure being hexagonal crystal structure; and, in particular, with this crystal structure of the graphite powder having a specific ratio of hexagonal crystal structure to rhombohedral crystal structure, improvements in capacity are achieved. That is, according to the present invention the graphite powder which is the active material of the negative electrode has a substantially complete graphite crystal structure, and Applicants limit the amount of rhombohedral structure and increase amount of hexagonal crystal structure, with orderliness and regularity between the laminate

layers of the graphite (e.g., a substantially complete crystal structure), so as achieve unexpectedly better results of increased capacity, as seen in Applicants' disclosure.

According to the present invention, the layers are formed by stacking the same while displacing regularly the respective layers in a predetermined manner to form substantially completely crystal structures in the graphite. It is respectfully submitted that when simply stacking the "hexagonal-net-plane layers" as in Takami, et al., it can not be determined as to whether "hexagonal" crystal structure or "rhombohedral" crystal structure is formed; and, moreover, as stated previously, in view of the displacements, twists and angles expressly described in Takami, et al., it is respectfully submitted that this reference would not have taught or suggested, and in fact would have taught away from, crystal structure as in the present claims.

Moreover, while Takami, et al. refers to the crystal planes (faces) (101) and (100) for specifying the intensity ratio $P_{101}/P_{100}$ of the (101) diffraction peak $P_{101}$ to the (100) diffraction peak $P_{100}$ of the graphite structure, Takami, et al. fails to identify whether the crystal planes referred to are of crystal structure, much less of hexagonal or rhombohedral crystal structure.

In contrast, according to the present invention the crystal plane (100) of hexagonal crystal structure and crystal planes (101) and (012) of rhombohedral crystal structure are identified, and the crystal structures of the graphite are determined through measuring diffraction peaks of the respective crystal planes by x-ray diffraction analysis. For example, the peaks observed at 42.3° and 44.4° relate to the crystal planes (100) and (101) of hexagonal crystal structure, which clearly shows the existence of the hexagonal crystal structure; and the peaks observed at 43.3° and 46.0° relate to the crystal planes (101) and (102) of rhombohedral crystal structure, which clearly shows the existence of the rhombohedral crystal structure.

Since Takami, et al. fails to disclose the stacking condition of the "hexagonal-net-plane layers", it is respectfully submitted that Takami, et al. fails to disclose the graphite as defined by the present invention.

It is emphasized that Takami, et al. has displacements, twists and angles. These displacements, twists and angles are necessary requirements of Takami, et al., to achieve diffusion of lithium ions with ease according to the description therein. Moreover, it is respectfully submitted that Applicants provide language distinguishing from Takami, et al., for example, in reciting that the graphite powder has substantially completely a crystal structure, as in the present claims and as described in Applicants' specification.

Takami, et al discloses a negative electrode carbonaceous material suitable for a lithium secondary battery, as well as a battery using this negative electrode carbonaceous material. According to Takami, et al., the negative electrode contains a carbonaceous material which has an exothermic peak at 700° C or more when measured by a differential thermal analysis, and an intensity ratio $P_{101}/P_{100}$ of a (101) diffraction peak $P_{101}$ to a (100) diffraction peak $P_{100}$ of a graphite structure obtained by X-ray diffraction analysis, of 0.7-2.2; and absorbs and desorbs lithium ions. See column 3, lines 1-8. Other negative electrodes disclosed in Takami, et al., are described at column 3, lines 16-25, 38-44, 56-60 and 66-68; as well in column 4, lines 9-13, 17 and 18.

Note also column 20, lines 25-56; column 21, lines 3-22; column 22, lines 1-19 and 37-62; and column 23, lines 10-21, for other disclosures in connection with negative electrodes of the secondary battery of Takami, et al. These disclosures all refer to the carbonaceous material having a graphite structure that exhibits a property of allowing reversible absorption and desorption of lithium ions to and from

hexagonal-net-plane layers in the graphite structure. Note also, for example, example 1 in column 24 and particularly lines 23-29 thereof, disclosing that the resultant carbonaceous material used was a graphitized carbon powder with an average particle size of 25 μm, which was distributed at a ratio of 90 vol.% within the range of 1-50 μm in a particle size distribution, and in which the ratio of particles with a particle size of 0.5 μm or less was 0 vol. % in the particle size distribution. Note also, inter alia, example 2 and the discussion in connection therewith at column 25, lines 20-26; and example 3 and the discussion in connection therewith at column 25, lines 52-59, describing particle size of the carbonaceous material.

Attention is particularly directed to column 7, lines 29-40, of Takami, et al., emphasizing that the carbonaceous material having the recited intensity ratio has appropriate displacements, twists and angles of the hexagonal-net-plane layers so that lithium ions diffuse more easily between the hexagonal-net-plane layers; and note also column 14, lines 21-39, disclosing that the carbonaceous material has a mean length La of a crystallite in the a-axis direction of graphite structure. This patent again refers to crystallite structure, e.g., at column 22, lines 37-62.

It is respectfully submitted that the disclosure in Takami, et al., having, e.g., crystallites, and having hexagonal-net-plane layers with appropriate displacements, twists and angles, would have neither disclosed nor would have suggested the presently claimed structure, including the graphite powder having substantially completely the crystal structure, with the recited particle size (at most 100 μm) of all of the particles of the graphite powder and with specified hexagonal and/or rhombohedral fraction of the crystal structure of the graphite powder, and the graphite powder being formed form natural graphite as a raw material, as described in the foregoing.

Again, it is emphasized that the hexagonal-net-plane layers of carbonaceous material as disclosed in Takami, et al., is different from, and would have neither disclosed nor would have suggested, the hexagonal crystal structure and/or rhombohedral crystal structure of graphite as in the present claims.

Thus, the carbonaceous material in Takami, et al., is constituted by stacking hexagonal-net-plane layers, and each of the layers is constituted by a unit plane layer A, B or C, each unit plane layer being constituted by a large number of crystallites spread in a plane, and each of which is constituted by six carbon atoms has, for example, illustrated the Figs. 1 and 3 of Flandrois, et al. It is respectfully submitted that nowhere does Takami, et al. disclose the stacking condition of the hexagonal-net-plane layers. Therefore, it is respectfully submitted that the carbonaceous material of Takami, et al, formed by stacking that hexagonal-net-plane layers, can neither be identified as hexagonal crystal structure or a rhombohedral crystal structure.

In contrast, according to the present invention, the layers are formed by stacking the same while displacing regularly respective layers in a predetermined manner to form substantially completely crystal structures in the graphite, including hexagonal crystal structure and rhomobohedral crystal structure as, for example, illustrated in Figs. 1 and 3 of Flandrois, et al. When simply stacking the hexagonal-net-plane layers as in Takami, et al., it cannot be determined that hexagonal or rhombohedral crystal structure are formed.

Further, while Takami, et al., refers to crystal planes (faces) (101) and (100) for specifying the intensity ratio $P_{101}/P_{100}$ of the (101) diffraction peak $P_{101}$ to the (100) diffraction peak $P_{100}$ of the graphite structure, Takami, et al., again fails to

identify whether the crystal planes referred to relate to those of hexagonal crystal structure or those of rhombohedral crystal structure.

In contrast, according to the present invention, the crystal plane (100) of hexagonal crystal structure and crystal planes (101) and (012) of rhombohedral crystal structure are identified, and the crystal structures of the graphites are determined through measuring the diffraction peaks of the respective crystal planes by X-ray diffraction analysis. For example, the peaks observed at 42.3° and 44.4° relate to the crystal planes (100) and (101) of hexagonal crystal structure, which clearly shows the existence of the hexagonal crystal structure, and the peaks observed that 43.3° and 46.0° relate to the crystal planes (101) and (102) of rhombohedral crystal structure which clearly shows the existence of the rhombohedral crystal structure (see present Fig. 1). It is respectfully submitted that one aspect of the present invention is the amounts and ratios of hexagonal and rhombohedral crystal structures in the graphite powder, through which advantages of the present invention are achieved, as discussed previously.

Furthermore, it is respectfully submitted that Takami, et al. nowhere discloses use of <u>natural graphite as raw material</u>, and, for this reason also, it is respectfully submitted that Takami, et al., would have neither disclosed nor would have suggested the presently claimed invention.

The contention by the Examiner in the second full paragraph on page 3 of the Office Action mailed March 23, 2007, that Takami, et al., "sets forth in multiple places in the document, a carbonaceous material for the anode in a lithium secondary battery that is inherently of a hexagonal crystal structure," is noted. The Examiner does <u>not</u> set forth where such "multiple places in the document" are. It is respectfully submitted that such constitutes a failure to satisfy 35 U.S.C. §132 with respect to this

contention by the Examiner. In any event, it is respectfully submitted that Takami, et al., refers to "crystallites", this reference does not disclose crystal structures, nor would have taught or would have suggested such aspect of the present invention, of the powder having substantially completely a crystal structure, much less rhombohedral and/or hexagonal fractions thereof as in the present claims.

The contention by the Examiner that the diffraction peaks in Takami, et al., "indicate a crystal structure for the entire anode material" is respectfully traversed. It is respectfully submitted to be telling that while referring to diffraction peaks, this patent only describes crystallites, not crystal structure; and, moreover, requires displacements, twists, and angles of the stacked hexagonal-net-plane layers. It is respectfully submitted that such disclosure in Takami, et al., would have taught away from a substantially complete crystal structure as in the present invention.

Specifically, Applicants respectfully traverse the allegations by the Examiner in the paragraph bridging pages 3 and 4 of the Office Action mailed March 23, 2007, that the spectral peaks are indicative of graphite powder having substantially completely a crystal structure in Takami, et al. To the contrary, it is respectfully submitted that taking the teachings of Takami, et al., as a whole, including the crystallite structure and the displacements, twists and angles of the stacked hexagonal-net-plane layers, such would have taught away from the present invention, including the powder having substantially completely a crystal structure.

The contentions by the Examiner in the first and third paragraphs on page 5 of the Office Action mailed March 23, 2007, that language of the present claims does not preclude twisted structures, and that Applicants have not included claim language differentiating from Takami, et al., which does not have high crystallinity and has displacements, twists and angles, are respectfully traversed. It is

respectfully submitted that the present claims, reciting that the graphite powder has substantially completely a crystal structure, differentiates from Takami, et al., which does not have high crystallinity and has displacements, twists and angles.

Flandrois, et al. discloses a carbon anode for a lithium rechargeable electrochemical cell, and a process for its production. The carbon anode comprises a graphite-containing, carbon-containing material, characterized in that the material includes, prior to electrical cycling, at least a first phase constituted by graphite having a rhombohedral crystal structure and comprising a fraction of more than 10%. See column 2, lines 3-10. Note also column 2, lines 33-40. See also the examples and Tables in connection therewith, showing, inter alia, passivation capacity (mAh/g).

Initially, it is noted that Flandrois, et al. discloses a carbon anode which includes a graphite-containing, carbon-containing material. Such disclosure of an anode would have neither disclosed nor would have suggested the presently claimed subject matter, including the negative electrode having an active material thereof being graphite, the graphite active material of the negative electrode including the specified graphite powder. Clearly, the carbon anode is the positive electrode in Flandrois, et al. Moreover, it is respectfully submitted that Flandrois, et al. is concerned with providing a carbon-containing anode having increased rhombohedral structure, so as to increase passivation capacity. In contrast, the graphite powder of the negative electrode of the present invention has increased hexagonal crystal structure and decreased rhombohedral crystal structure so as to increase deintercalating capacity for lithium. It is respectfully submitted that Flandrois, et al. would have neither taught nor would have suggested the presently claimed invention, including, inter alia, the negative electrode with graphite as active material,

ranges of hexagonal and rhombohedral fractions, and unexpectedly better results achieved in these ranges, as in the present invention; as well as other features of the present invention as discussed previously.

It is respectfully submitted that Flandrois, et al. is characterized by containing more rhombohedral crystal structure of the graphite; in contrast, the present invention is characterized by limiting the content of the rhombohedral crystal structure of the graphite, so as to achieve the advantages discussed previously.

Moreover, various claims of the present application recite that the raw material of the graphite is natural graphite. It is respectfully submitted that Flandrois, et al., or Takami, et al., would have neither disclosed nor would have suggested the presently claimed invention, including wherein the raw material of the graphite is natural graphite.

In addition, it is respectfully submitted that Flandrois, et al. would have neither taught nor would have suggested a particle size of the graphite powder being equal to or smaller than 100μm, as in the present claims.

In this regard, the contention by the Examiner in the last paragraph on page 6 of the Office Action mailed March 23, 2007, that since the graphite in Flandrois, et al. is ground in an impeller beaker for a minimum period of 15 minutes (see column 8, lines 1-6 of Flandrois, et al.), it would have been obvious that the size of the graphite would have been 100 microns or less, is respectfully traversed. It is noted that the graphite in Flandrois, et al. is simply ground in an impeller beaker. It is respectfully submitted that the size of the powder formed thereby would be uneven, containing, inter alia, powder having a grain diameter more than 100 microns as well as smaller particles. In contrast, according to the present invention, all particles of the graphite powder is at most 100 μm, i.e., is uniformly 100 microns or less. Such graphite

powder size is achieved, for example, through use of a sieve. It is respectfully submitted that Flandrois, et al. would have neither taught nor would have suggested the presently claimed subject matter, including particle size of the powder as in the present claims, and advantages thereof.

The contention by the Examiner in the last paragraph on page 6 of the Office Action mailed March 23, 2007, that it is notoriously well known in the battery art to have electrode particles be of a particle size as in the present claims, is noted. The Examiner has pointed to no evidence or reasoning in support thereof; and, in particular, has pointed to no evidence or reasoning suggesting the material of Flandrois, et al. should be of a size as in the present claims. Especially in view of advantages achieved by the present invention, including size of the graphite powder, and problems arising when forming the powder having the relatively small size as discussed previously, the mere conclusion by the Examiner, without any evidence or reasoning in support thereof, is improper.

In addition, it is emphasized that Flandrois, et al., is characterized by containing more rhombohedral crystal structure of graphite, in contrast with the present invention wherein the content of the rhombohedral crystal structure is reduced.

Furthermore, it is emphasized that according to the present invention natural graphite is used as the raw material for forming the recited graphite active material of the negative electrode. As mentioned previously, through use of natural graphite as the raw material, ratio of rhombohedral crystal structure can easily be reduced. It is respectfully submitted that Flandrois, et al., does not disclose, nor would have suggested such feature of the present invention, and advantages thereof.

The Examiner has referred to column 1, lines 28-30, of Flandrois, et al., as describing natural graphite. Note the second paragraph of Item 5, on page 6 of the Office Action mailed March 23, 2007. See also the third paragraph on page 7, the Examiner referring to lines 28-30 apparently of column 1, of Flandrois, et al. Such disclosure in Flandrois, et al., is in connection with background of the anode described therein, describing natural or artificial graphites for such electrodes. It is respectfully submitted that this disclosure does not teach, nor have suggested, the presently claimed graphite active material, wherein the raw material thereof is natural graphite.

Applicants respectfully traverse the contention by the Examiner in the fourth full paragraph on page 7 of the Office Action mailed March 23, 2007. It is respectfully submitted that Flandrois, et al., clearly would have neither taught nor would have suggested the secondary battery as in the present claims, having the graphite powder of the graphite active material wherein the particle size of all of the graphite powder is equal to or smaller than 100 μm.

In view of the foregoing comments and amendments, entry of the present amendments, and reconsideration and allowance of all claims presently being considered on the merits in the above-identified application, are respectfully requested.

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Respectfully submitted,

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